

# CCR Rule Alternative Closure Requirements

Alliant Energy and U.S. Environmental Protection Agency  
October 22, 2020

# Agenda

- Culture Share and Roll Call
- Introduction and Meeting Purpose
- Site Discussions
  - Burlington Generating Station
  - Lansing Generating Station
  - Ottumwa Generating Station
  - Columbia Energy Center
- Review and Adjourn

# Meeting Purpose

- Provide overview of alternative closure applications
- Confirm eligibility
- Discuss completeness of applications

# Alliant Energy CCR Management

- 29 CCR Ponds – 16 of these are now closed
  - Four additional ponds completing closure this year.
- Alliant Energy CCR Ponds:
  - Less than 40 acres in size; No High Hazard impoundments
  - Ponds are unlined
- All remaining CCR Ponds closed by October 2023.
- Beneficially use 100% of Class C fly ash in cement



# Alt. Closure Extension Applications

- Burlington Generating Station - §257.103(f)(2)
- Lansing Generating Station - §257.103(f)
- Ottumwa Generating Station - §257.103(f)(1)
- Columbia Energy Center - §257.103(f)(1)

# Summary

Facility	# of CCRSI	GW Status	ACM Public Meeting	Cease Receipt Date <i>DRAFT</i>	Complete Closure	Ext. Type
Burlington	4 existing	Corrective Action	Completed	6/30/2022	10/17/2023	(f)(2)
Lansing	4 existing	Corrective Action	Completed	12/31/2022	10/15/2023	Discuss
Ottumwa	1 existing 1 inactive	Corrective Action	Completed	12/31/2022	8/15/2023	(f)(1)
Columbia	1 existing 1 inactive	Assessment Monitoring	N/A	10/31/2022	10/31/2023	(f)(1)

# Feedback Received from EPA

- Executive Summary and Table of Contents
- Supporting statements with evidence
- Providing additional information for off-site capacity evaluations
- Including flows and flow rates
- Consistency across visual and narrative timelines

# Key Question

- Transition process from 103(a) to 103(f)
  - Confirm receipt of non-CCR wastewaters under (f)(1) and (f)(2)
  - Process for updating CCR Operating Record and Web Site
    - Closure and Post-Closure Plans
    - Alternative Closure Notification
    - Notice of Intent to Close
    - Remove Obsolete Documents Pertaining to 103(a)?

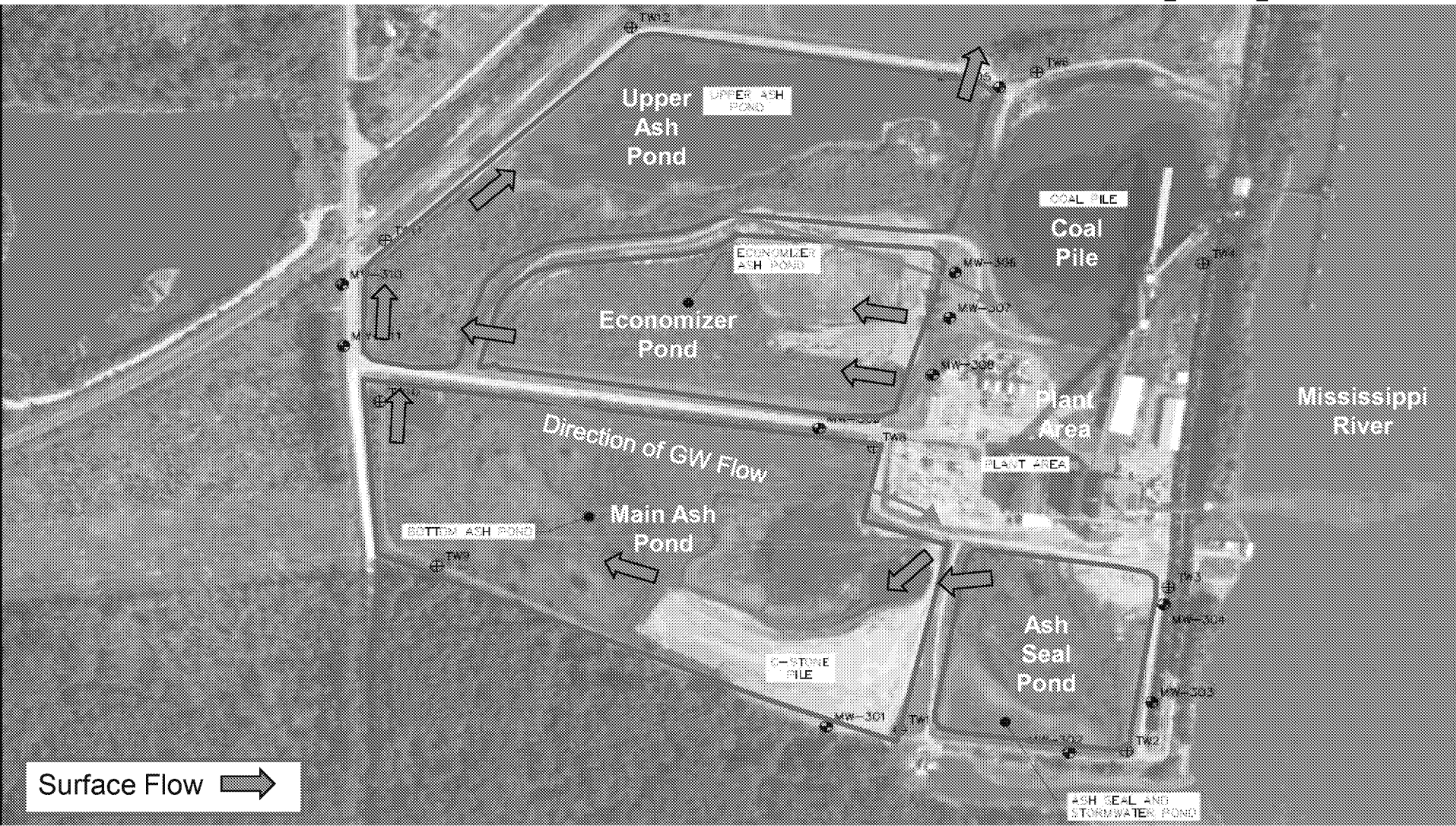
# Site-Specific Discussions

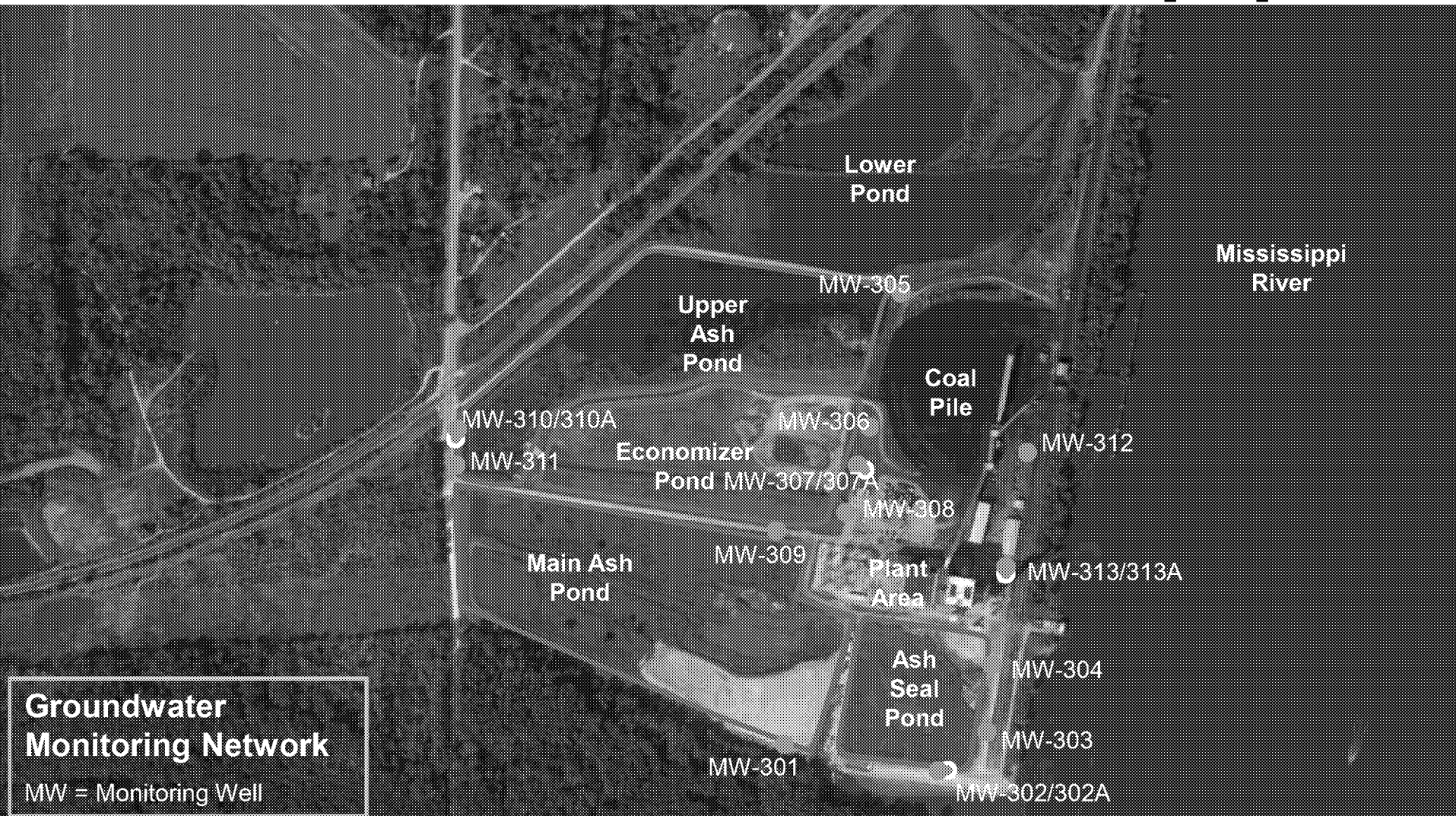
# Burlington Generating Station (BGS)

- Four existing CCR surface impoundments

BGS Ash Seal Pond (5.7 ac)	BGS Economizer Pond (11 ac)
BGS Main Ash Pond (18.7 ac)	BGS Upper Ash Pond (13.3 ac)

- No alternative disposal capacity
- Facility will operate on natural gas after Dec. 31, 2021
- Cease Receipt of non-CCR wastewater June 30, 2022
- Pond Closures complete by October 2023
- Facility is in Corrective Action







# Burlington – Compliance Assistance

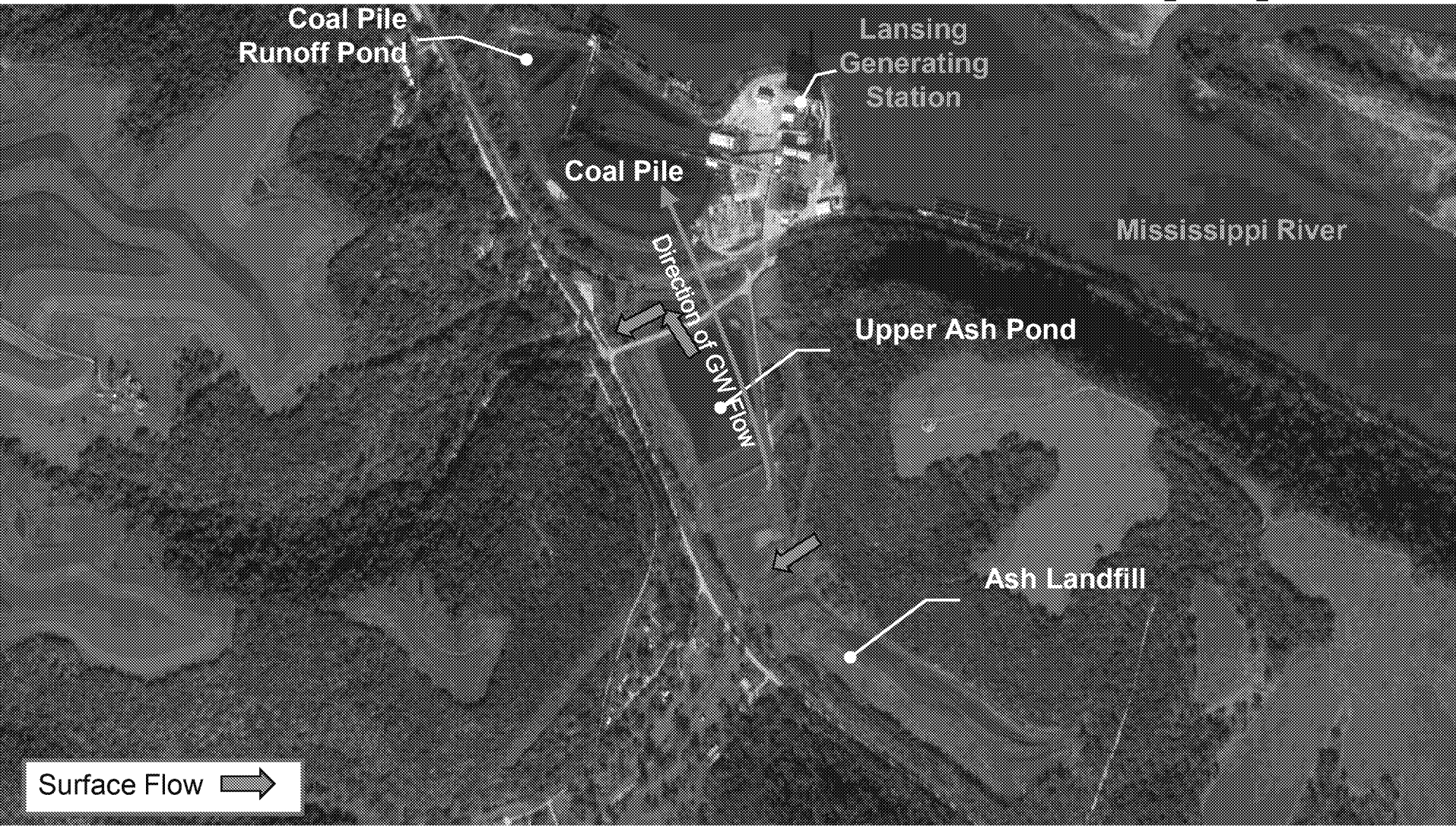
- Fuel Type Conversion at end of 2021 (coal to natural gas)
  - Boiler will still be in operation
- EPA raised concerns regarding §257.103(a) and (b)
- “Surface impoundments currently operating under 103(a) or (b) must comply with...103(f)(1) or (f)(2).”
- IPL must revise documents by November 4, 2020 (30 days)
  - Alternative Closure Demonstration – (f)(2) application
  - Progress Reports

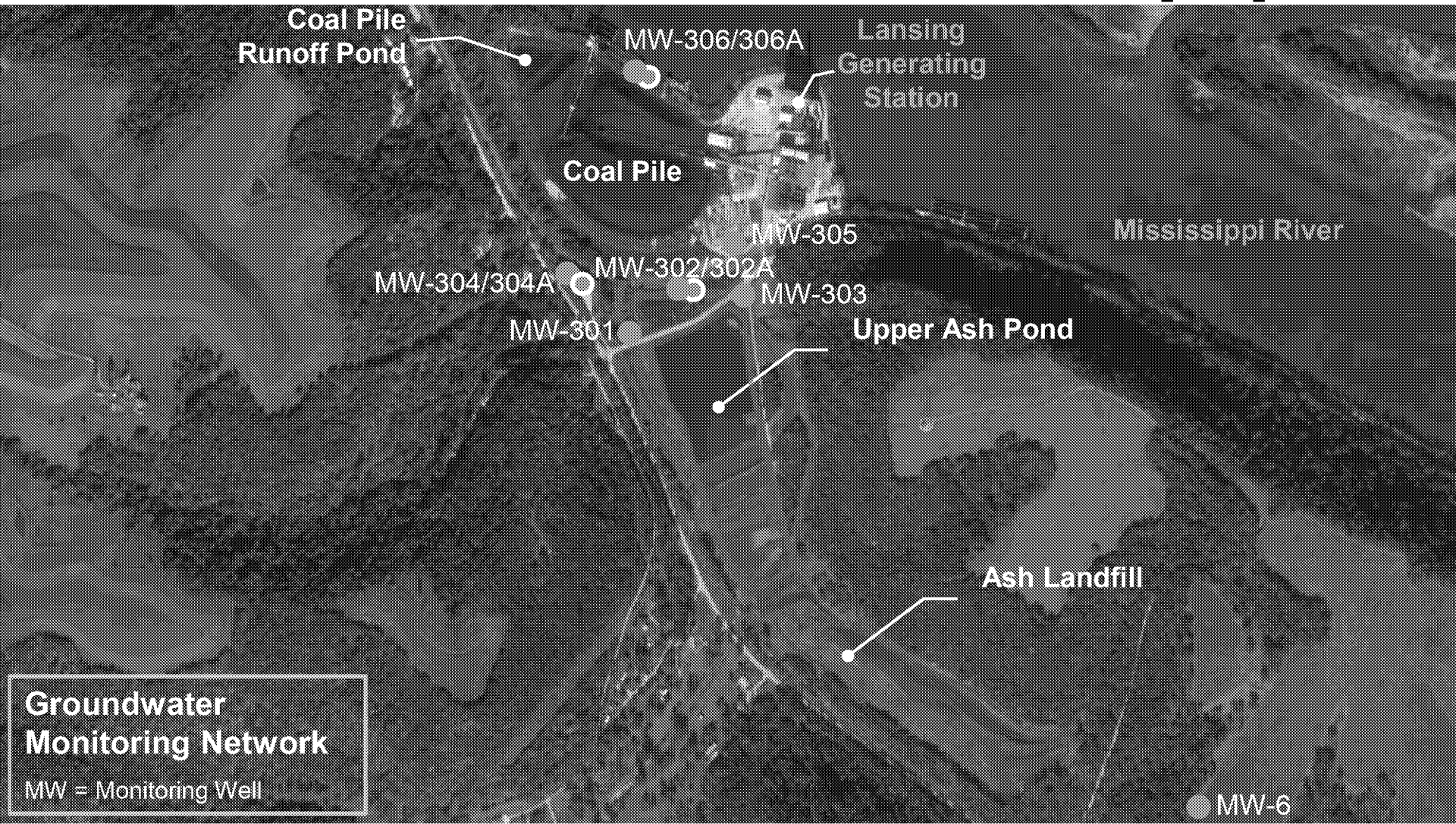
# Lansing Generating Station (LAN)

- One existing CCR surface impoundment

LAN Upper Ash Pond (11.5 ac)

- No alternative disposal capacity
- Discussion of facility operations
- Cease Receipt no later than December 31, 2022
- Pond Closure complete by October 2023
- Facility is in Corrective Action





## Groundwater Monitoring Network

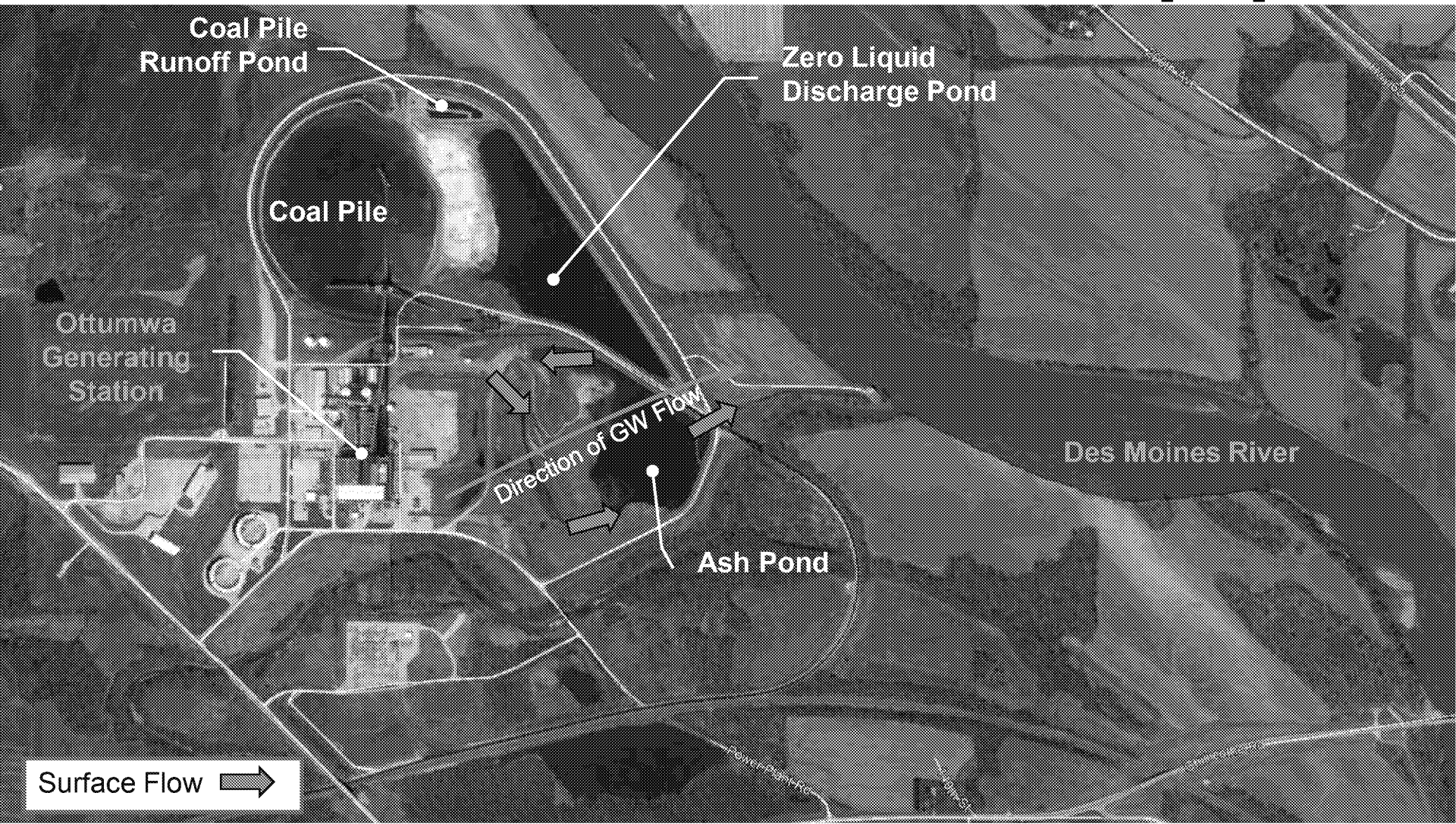
MW = Monitoring Well

# Ottumwa Generating Station (OGS)

- One existing and one inactive CCR surface impoundment

OGS Ash Pond (18 ac)	OGS ZLDP <i>inactive</i> (19 ac)
----------------------	----------------------------------

- Currently installing dry bottom ash handling and will install new wastewater treatment capacity
- Cease Receipt no later than December 31, 2022
  - Ceased receipt of bottom ash in September 2020
- Pond Closure complete by August 2023
- Facility is in Corrective Action



Coal Pile  
Runoff Pond

Zero Liquid  
Discharge Pond

Coal Pile

Ottumwa  
Generating  
Station

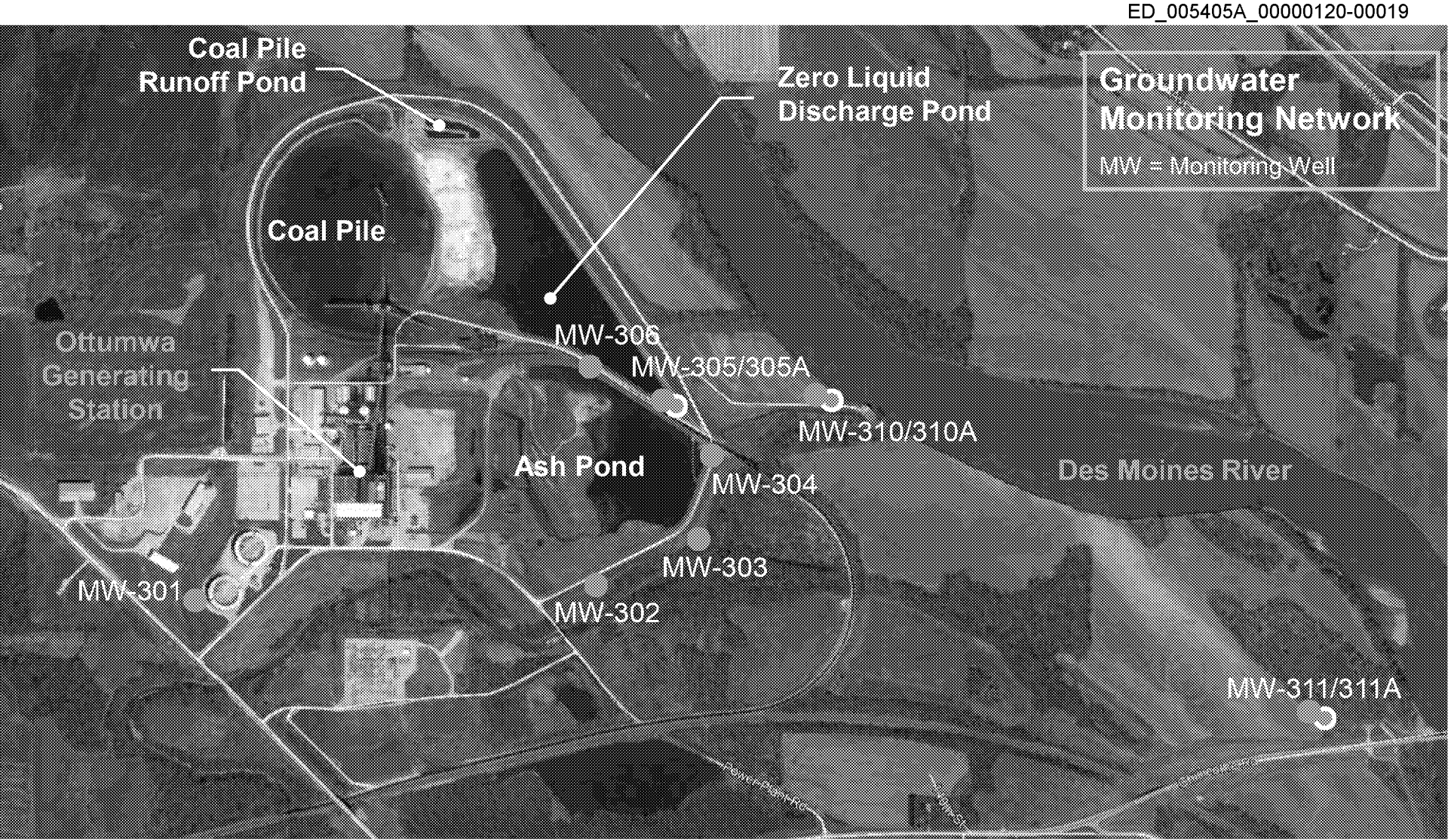
Direction of GW Flow

Ash Pond

Des Moines River

Surface Flow →





# Columbia Energy Center (COL)

- One existing and one inactive CCR surface impoundment

COL Primary Pond (14.7 ac)	COL Secondary Pond <i>inactive</i> (9.6 ac)
----------------------------	---

- Currently installing dry bottom ash handling and will redirect non-CCR wastewaters
- Cease Receipt no later than October 31, 2022
- Pond Closure complete by October 2023
- Facility is in Assessment Monitoring (no ASD)



Wisconsin  
River

Primary  
Pond

Secondary  
Pond (inactive)

Direction of GW Flow

Columbia  
Energy  
Center

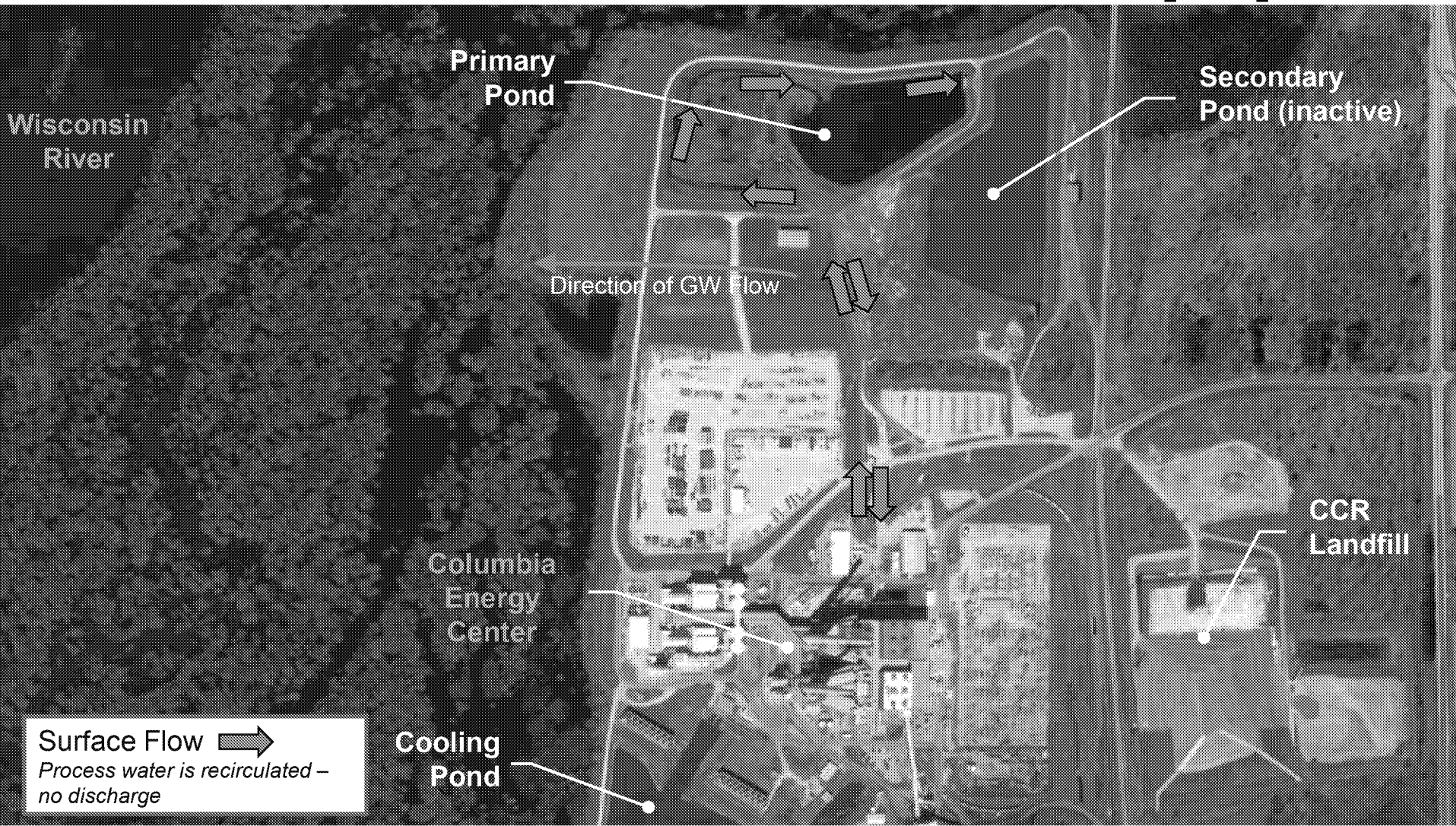
CCR  
Landfill

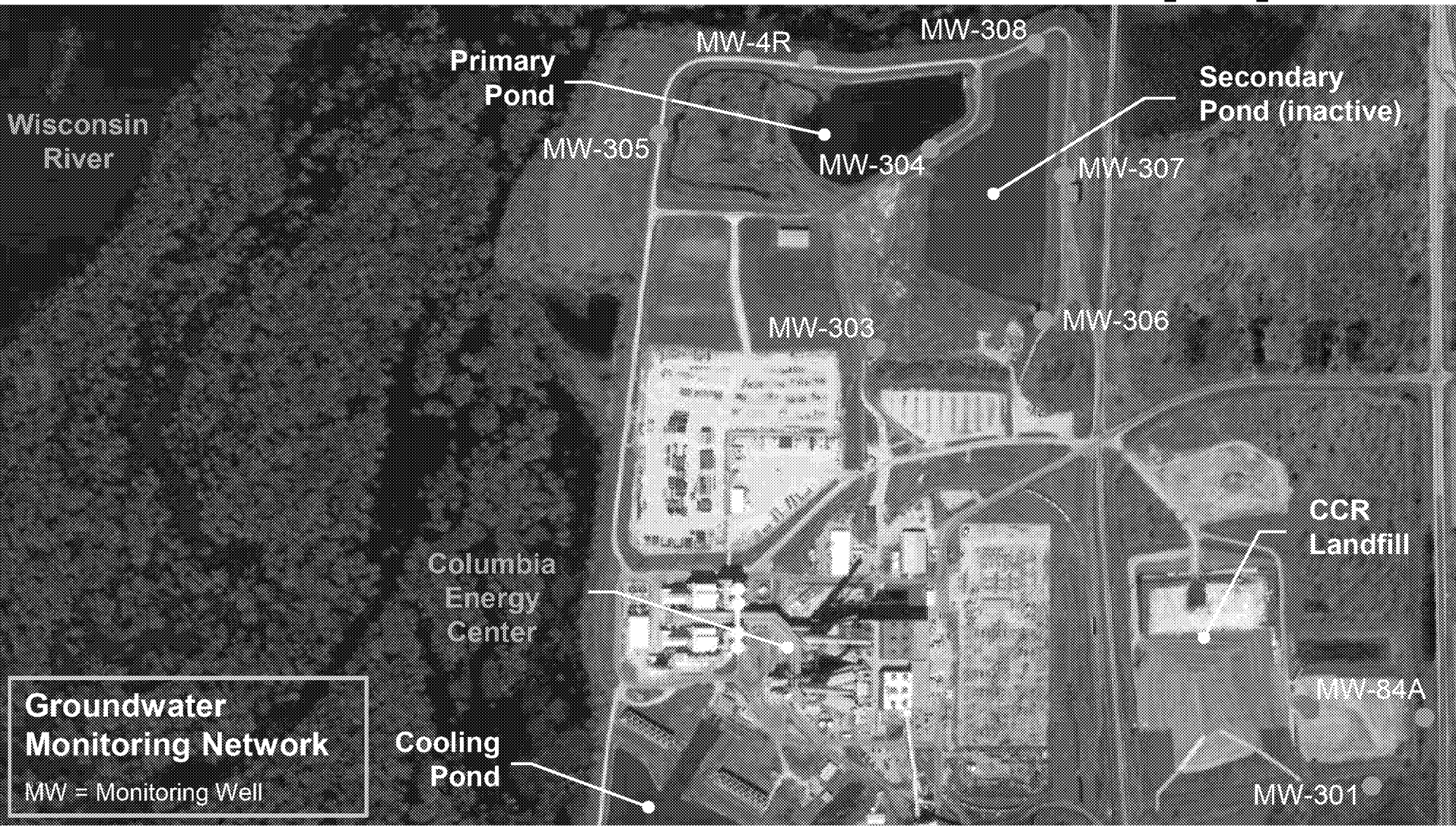
Surface Flow



Process water is recirculated –  
no discharge

Cooling  
Pond





# Questions & Discussion

Thank you for your time!

Alliant Energy Existing CCR Surface Impoundments - ccr.alliantenergy.com				
	BGS (4 ponds)	LAN	OGS	COL Primary
CCR Surface Impoundment Type	Existing	Existing	Existing	Existing
Surface Impoundment Size (acres)	5.7-18.7	11.5	18	14.7
Liner Type	Unlined	Unlined	Unlined	Unlined
Hazard Potential Classification	Significant	Significant	Low	Low
Safety Factor Assessment	X	X	X	X
Structural Stability Assessment	X	X	X	X
Flood Control Plan	X	X	X	X
Fugitive Dust Plan	X	X	X	X
7-Day and Annual Inspections	X	X	X	X
Groundwater Monitoring Network Type	Multiunit	Multiunit	Single	Single
Groundwater Monitoring Certification	X	X	X	X
Sampling and Analysis Plan	X	X	X	X
Annual Groundwater Quality Reports	X	X	X	X
Groundwater Monitoring Status	CA	CA	CA	AM
Assessment of Corrective Measures	X	X	X	N/A
ACM Public Meeting	X	X	X	N/A
Selection of Remedy Final Report	Pending	Pending	X	N/A
Closure Plan	X	X	X	X
Post-Closure Plan	X	X	X	X
Proposed Cease Receipt of CCR	6/30/2022	12/31/2022	12/31/2022	10/31/2022
Anticipated Completion of Pond Closure	10/17/2023	10/15/2023	8/15/2023	10/31/2023

# Application for Site-Specific Alternative Deadline to Initiate Closure of CCR Surface Impoundments

Burlington Generating Station  
4282 Sullivan Slough Road  
Burlington, Iowa 52601

Prepared for:

Interstate Power and Light Company  
4282 Sullivan Slough Road  
Burlington, Iowa 52601

**SCS ENGINEERS**

25219168.00 | November xx, 2020

2830 Dairy Drive  
Madison, WI 53718-6751  
608-224-2830

## Table of Contents

Section	Page
<b>Executive Summary.....</b>	<b>iii</b>
<b>1.0 Introduction and Purpose .....</b>	<b>1</b>
<b>2.0 Facility Information and Background.....</b>	<b>2</b>
2.1 Facility Information.....	2
2.2 Background.....	2
<b>3.0 Demonstration for Cessation of Coal-Fired Boilers.....</b>	<b>3</b>
3.1 Alternative Disposal Capacity Assessment.....	3
3.2 Risk Mitigation Plan.....	5
3.2.1 Limiting Future Groundwater Releases .....	6
3.2.2 Mitigating Groundwater Exposures .....	6
3.2.3 Containing Groundwater Impacts.....	8
3.3 Compliance with CCR Requirements.....	10
3.3.1 Certification by Owner/Operator.....	10
3.3.2 Groundwater Monitoring System.....	10
3.3.3 Groundwater Monitoring Results.....	11
3.3.4 Hydrogeology .....	12
3.3.5 Assessment of Corrective Measures.....	13
3.3.6 Selection of Remedy .....	13
3.3.7 Structural Stability Assessment.....	14
3.3.8 Safety Factor Assessment .....	14
3.4 Schedule .....	14
<b>4.0 References.....</b>	<b>15</b>

## Tables

Table 1.	Groundwater Analytical Results Summary - Compliance Monitoring
Table 2.	Results Comparison to GPS for Lithium
Table 3.	Results Comparison to GPS for Molybdenum

## Figures

- Figure 1. Site Location Map
- Figure 2. Site Plan and Monitoring Well Locations
- Figure 3. Low Potentiometric Surface Map – September 9, 2020
- Figure 4. High Potentiometric Surface Map – June 6, 2019
- Figure 5. Geologic Cross Section
- Figure 6. Water Balance Diagram

## Appendices

- Appendix A Owner's Compliance Certification
- Appendix B Hydrogeological and Groundwater Monitoring Data
- Appendix C Assessment of Corrective Measures
- Appendix D Selection of Remedy Semiannual Reports
- Appendix E Initial Structural Stability Assessment (August 2016)
- Appendix F Initial Safety Factor Assessment (August 2016)
- Appendix G Updated Closure Plan (October 2020)

I:\25219168.00\Deliverables\EPA Closure App\202011XX\_BGS Application Alt Deadline\_DRAFT\_2020 10 19.docx

## EXECUTIVE SUMMARY

The Interstate Power and Light Company (IPL) Burlington Generating Station (BGS) is a steam-electric generating station located south of Burlington, Iowa. IPL will end coal-fired operations at BGS by December 31, 2021 and operate the boiler with natural gas after coal-fired operations cease as allowed by a July 15, 2015 Consent Decree.

IPL currently operates one coal-fired boiler at BGS and uses four existing coal combustion residual (CCR) surface impoundments to manage CCR and non-CCR wastestreams. Each of the four CCR surface impoundments are less than 40 acres in size and all are unlined. The surface impoundments must close to meet the requirements of 40 CFR 257.101(a) and (b).

IPL is submitting this application to demonstrate absence of alternative capacity for managing CCR and non-CCR wastestreams and is requesting U.S. Environmental Protection Agency (USEPA) approval to continue disposal of these wastestreams beyond April 11, 2021 as allowed by §257.103(f)(2). With EPA approval, IPL will cease disposal of CCR and non-CCR wastestreams by June 30, 2022 and will complete closure of the four unlined CCR surface impoundments by October 17, 2023.

No existing alternate disposal capacity is available on or off site for managing an average 3.7 million gallons per day (MGD) of CCR and non-CCR wastestreams generated at BGS.

- All existing, suitable space for treatment and disposal of these wastestreams on IPL property is occupied by existing CCR surface impoundments or other infrastructure necessary to BGS operations.
- No existing conveyance system is available to discharge these wastestreams offsite for treatment and disposal.
- Hauling these wastestreams off site for treatment and disposal is not feasible due to waste volume and the high number of trucks/truckloads required to manage the volume.
- No existing temporary facilities are available at BGS, nor is there adequate space on site to deploy temporary/portable treatment capacity.

IPL has provided certification of compliance with all other requirements of the CCR Rule as of the date of application submittal, including the requirement to conduct any necessary corrective action, as required in §257.103(f)(2)(iii). Lithium and molybdenum have been detected at statistically significant levels (SSL) above the groundwater protection standard (GPS) in samples from more than one downgradient monitoring well at BGS. IPL has completed an Assessment of Corrective Measures and is working to address these existing groundwater impacts through the CCR Rule Corrective Action process. IPL is actively designing a remedy that includes changing source water, redirecting low volume wastewaters, and closing the CCR surface impoundments. Pursuant to §257.103(f)(2)(v)(B), IPL has prepared a risk mitigation plan to address groundwater impacts. As required in §257.103(f)(2)(ii), potential risks to human health and the environment during continued operation of the CCR surface impoundments are adequately mitigated.





# Ottumwa Generating Station Demonstration for a Site Specific Alternate to Initiation of Closure Deadline



Interstate Power and Light Company

Revision C  
October 15, 2020

# Ottumwa Generating Station Demonstration for a Site Specific Alternate to Initiation of Closure Deadline

Prepared for

Interstate Power and Light Company

Ottumwa, Iowa

Revision B  
October 15, 2020

Prepared by

Burns & McDonnell Engineering Company, Inc.  
Kansas City, Missouri

## INDEX

### Interstate Power and Light Company Ottumwa Generating Station Demonstration for a Site Specific Alternate to Initiation of Closure Deadline

#### Report Index

<u>Chapter Number</u>	<u>Chapter Title</u>	<u>Number of Pages</u>
0.0	Executive Summary	2
1.0	Introduction	3
2.0	Workplan	14
3.0	Documentation and Certification of Compliance	2
4.0	Conclusion	1
Appendix A	Site Plan, WMB Drawings, and Water Balances	
Appendix B	Schedule	

**TABLE OF CONTENTS**

	<b><u>Page No.</u></b>
<b>0.0 EXECUTIVE SUMMARY .....</b>	<b>0-1</b>
<b>1.0 INTRODUCTION .....</b>	<b>1-1</b>
<b>2.0 WORKPLAN .....</b>	<b>2-1</b>
2.1 § 257.103(f)(1)(iv)(A)(1) - No Alternative Disposal Capacity and Approach to Obtain Alternative Capacity .....	2-1
2.1.1 CCR Wastestreams .....	2-1
2.1.2 Non-CCR Wastestreams .....	2-2
2.1.3 Site-Specific Conditions Supporting Alternative Capacity Approach – § 257.103(f)(1)(iv)(A)(1)(i) .....	2-4
2.1.4 Impact to Plant Operations if Alternative Capacity Not Obtained – § 257.103(f)(1)(iv)(A)(1)(ii) .....	2-5
2.1.5 Options Considered Both On and Off-Site to Obtain Alternative Capacity .....	2-5
2.1.6 Approach to Obtain Alternate Disposal Capacity .....	2-7
2.1.7 Technical Infeasibility of Obtaining Alternative Capacity prior to April 11, 2021 .....	2-10
2.1.8 Justification for Time Needed to Complete Development of Alternative Capacity Approach – § 257.103(f)(1)(iv)(A)(1)(iii) .....	2-10
2.2 Detailed Schedule to Obtain Alternative Disposal Capacity - § 257.103(f)(1)(iv)(A)(2) .....	2-11
2.3 Narrative of Schedule and Visual Timeline - § 257.103(f)(1)(iv)(A)(3) .....	2-11
2.4 Progress Narrative Toward Obtaining Alternative Capacity - § 257.103(f)(1)(iv)(A)(4) .....	2-14
<b>3.0 DOCUMENTATION AND CERTIFICATION OF COMPLIANCE .....</b>	<b>3-1</b>
3.1 Owner’s Certification of Compliance - § 257.103(f)(1)(iv)(B)(1) .....	3-1
3.2 Visual Representation of Hydrogeologic Information - § 257.103(f)(1)(iv)(B)(2) .....	3-1
3.3 Groundwater Monitoring Results - § 257.103(f)(1)(iv)(B)(3) .....	3-2
3.4 Description of Site Hydrogeology - § 257.103(f)(1)(iv)(B)(4) .....	3-2
3.5 Corrective Measures Assessment - § 257.103(f)(1)(iv)(B)(5) .....	3-2
3.6 Remedy Selection Progress Report - § 257.103(f)(1)(iv)(B)(6) .....	3-3
3.7 Structural Stability Assessment - § 257.103(f)(1)(iv)(B)(7) .....	3-3
<b>4.0 CONCLUSION .....</b>	<b>4-1</b>
 <b>APPENDIX A – SITE PLAN, LVWTP DRAWINGS, AND WATER BALANCES</b>	
<b>APPENDIX B – SCHEDULE</b>	

**APPENDIX C – COMPLIANCE DOCUMENTS**

**LIST OF ABBREVIATIONS**

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
BMcD	Burns & McDonnell (IPL's Owner's Engineer)
CCR	Coal Combustion Residual(s)
CCR Rule	Coal Combustion Residuals Rule
CFR	Code of Federal Regulations
IPL	Interstate Power and Light Company (Co-owner and Operator)
ELG	Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category
EPA	Environmental Protection Agency
GCL	Geosynthetic Clay Liner
GPM	Gallons Per Minute
GWPS	Groundwater Protection Standards
IDNR	Iowa Department of Natural Resources
LVWTP	Low Volume Wastewater Treatment Pond
MidAm	MidAmerican Energy Company (Co-owner)
MW	Megawatt
O&M	Operating and Maintenance
RCRA	Resource Conservation and Recovery Act
S&L	Sargent & Lundy
SAP	Sampling and Analysis Plan
SCU	Solids Contact Unit Clarifier
OGS	Ottumwa Generating Station
SSI(s)	Statistically Significant Increase(s)
SSL(s)	Statistically Significant Level(s)

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
Surface Impoundment	OGS Ash Pond
U.S.C.	United States Code
WMB	Water Mass Balance
ZLD	Zero Liquid Discharge

## 0.0 EXECUTIVE SUMMARY

Interstate Power and Light Company (IPL) is submitting this Demonstration to the U.S. Environmental Protection Agency to obtain approval of an alternate site-specific deadline to initiate closure of the existing CCR Surface Impoundment located at IPL's Ottumwa Generating Station (OGS) near Ottumwa, Iowa. Specifically, **IPL requests EPA to establish the alternate deadline of December 31, 2022 for IPL to cease routing all wastestreams to the OGS Ash Pond** (the "Surface Impoundment") and initiate closure of this CCR unit. The Surface Impoundment has an approximate surface area of 18 acres and receives non-CCR wastestreams from the plant. IPL ceased discharge of CCR wastestreams to the OGS Ash Pond in September 2020 and is currently finalizing the installation of a dry bottom ash handling system.

IPL began identifying compliance options for the OGS Impoundment in October 2015, shortly after the effective date of the CCR Rule (40 CFR Part 257, Subpart D). Identifying options for handling both CCR and non-CCR wastestreams at OGS had to take into account not only the evolving requirements of the CCR Rule, but also the newly revised Effluent Limitations Guidelines and Standards (ELGs), as incorporated into the facility's NPDES wastewater discharge permit. Following a 2016 study, IPL identified several actions to comply with the CCR and ELG rules, including the preferred hybrid closure approach for the Surface Impoundment and closure by removal of the ZLD Pond. The ZLD Pond has not received wastestreams since the early 1980s. The CCR material in the ZLD Pond will be consolidated into the Surface Impoundment, repurposed with a new liner system, and be repurposed into a Low Volume Wastewater Treatment Pond (LVWTP) to treat non-CCR wastestreams which are currently routed to the Surface Impoundment.

IPL has identified three primary activities that must be completed before IPL can cease all CCR and non-CCR wastestreams to the Surface Impoundment and commence its closure, including:

- Cease sluicing bottom ash. (The plant is currently in outage to convert to a dry bottom ash handling system and ceased sluicing bottom ash in September 2020.)
- Close the inactive ZLD Pond through removal of CCR, construct a low Wastewater Treatment Pond in the original footprint, and reroute non-CCR wastestreams to it.
- Cease non-CCR wastestreams to the Surface Impoundment.

As certified herein, the Surface Impoundment is in compliance with all the requirements of the CCR Rule and will remain in compliance until closure of the Surface Impoundment is complete. Regular compliance activities, including required groundwater monitoring and reporting, are ongoing and all required



documents have been placed into the facility's Operating Record and posted on the publicly available website. Groundwater monitoring performed under the CCR Rule has identified one constituent listed in Appendix IV to the CCR Rule, cobalt, detected at statistically significant levels exceeding the applicable groundwater protection standards. Subsequent evaluations of the nature and extent of the cobalt impacts found that the concerns are limited to shallow groundwater in the vicinity of the surface impoundment. IPL has not identified any offsite impacts or impacts to drinking water sources. IPL has completed the Assessment of Corrective Measures (ACM) and a public meeting to discuss the ACM with interested and affected parties was held on June 4, 2020. The final Selection of Remedy Report has been completed and IPL is now in the process of implementing the remedy. The selected remedy includes closure of the Surface Impoundment and initiation of monitored natural attenuation.

Alternate offsite disposal capacity is not available for wastestreams currently entering the Surface Impoundment. As acknowledged previously by EPA, it is not feasible to transport wet CCR to an offsite location. Nor is it feasible to transport the facility's large volume non-CCR wastestreams offsite for disposal. [NOTE: ADDITIONAL INFORMATION TO BE ADDED PRIOR TO SUBMITTAL]

Alternate onsite disposal capacity is not currently available and cannot be made available prior to April 11, 2021. Given the extensive existing power production infrastructure on the site, as well as numerous environmental constraints such as floodplains, streams and wetlands, IPL determined that the best and most feasible location to construct a new LVWTP to treat non-CCR wastestreams currently routed to the Surface Impoundment is within the footprint of the ZLD Pond following the removal of CCR. The ZLD Pond cannot be closed by removal of CCR and repurposed prior to April 11, 2021, thus non-CCR wastestreams must continue to flow to the Surface Impoundment until the LVWTP is in service. Closure of the Surface Impoundment will commence after the LVWTP is in service.

IPL is completing installation of the dry bottom ash handling system and ceased CCR discharges to the Surface Impoundment in September 2020. Closure by removal of CCR in the ZLD Pond is scheduled to commence in spring of 2021 with LVWTP construction beginning spring of 2022. Based on the construction schedule set forth in this Demonstration, IPL estimates the LVWTP will be complete and the flow of all CCR and non-CCR wastestreams to the Surface Impoundment will cease by December 31, 2022.

Consequently, because of the demonstrated lack of available alternate disposal capacity before April 11, 2021, as well as the compliance status of the Surface Impoundment and IPL's diligent and good faith efforts since December 2015 to comply with the CCR Rule and ELG, pursuant to 40 C.F.R. §

257.103(f)(1), IPL respectfully requests a site-specific alternate deadline of December 31, 2022 to initiate closure of the Surface Impoundment at OGS.

DRAFT